REMARKS

Claims 2-4 and 6-20 pending in the present application. Claims 9, 11, and 13 are independent claims. By this Amendment, claims 9, 11, and 13 are amended and claims 18, 19, and 20 are added. Reconsideration and Allowance based on the above amendments and following remarks are respectfully requested.

Amendments to Claims 9, 11, and 13

Claims 9, 11, and 13 are each amended to further clarify the status of subgroups as they relate to a class of service.

35 U.S.C. §112 Rejection

Claims 9, 11, and 13 stand rejected under 35 U.S.C. §112 as being indefinite. The Office Action states that use of the term "such as" renders the claims indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. Applicants have removed the phrase 'such as' from the claims in order to clarify the claim language as requested.

Double Patenting

Claims 2-4 and 6-17 stand provisionally rejected on the ground of nonstatutory double patenting over the claims of copending Application 10/575,706 (referred to as '706). Applicants respectfully traverse this rejection.

The Office Action states that claim 1 of '706 is not patentably distinct from claim 9 of the present Application. Applicants respectfully disagree. Claim 1 of '706 pertains to a specific method of packet prioritization that depends on data transmission speed and the distribution of packets across sub-groups in a particular traffic flow. Claim 9 of the present invention pertains to scheduling unutilized bandwidth for use by effort-based classes of service based on a priority assigned to a packet. Applicants respectfully submit that these are patentably distinct inventions

and that neither renders the other obvious. Applicants therefore respectfully request reconsideration and withdrawal of this rejection.

35 U.S.C. §102(e) Tayyar Rejection

Claims 2-4 and 6-17 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 7.194.741 to Tayyar at al. (hereinafter "Tayyar"). This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

Claim 9

Independent claim 9 pertains to "further classifying packets from at least one class of service into one of at least two internal subgroups within the at least one class of service; and scheduling available bandwidth of transmission links between class-of-service specific FIFO queues using a bandwidth scheduling discipline that ensures instantaneous availability of unutilized portions of bandwidth from all service classes to all effort-based service classes in a specific, consistent, configurable, ratio by assigning a priority value to a packet based on a combination of the packet's class of service and the subgroup information of the packet or at least one packet immediately preceding or following said packet."

Tayyar discloses scheduling methods and systems to schedule packets being dispatched on a communication link. (Col. 4, lines 58-64). The invention relates to the calculation of timestamps for data packets in different sessions such that a backlog of packets may be effectively monitored and controlled. (Col. 5, lines 1-20).

Tayyar teaches that a "session" may include a queue for a given class of service in a communication link, and that timetstamp information is assigned to incoming packets based on their arrival time, the level of backlog, and their particular session, or class of service. (Col. 8, line 36 – Col 9, line 31). Tayyar does not teach, however, making bandwidth from "idle

sessions" – i.e. unutilized class of service queues – instantaneously available "to all effort-based service classes in a specific, consistent, configurable ratio" as required by independent claim 9.

Tayyar only discusses timestamping of individual packets and backlog calculation, and does not teach or suggest an approach that would permit bandwidth sharing across all classes of service in a configurable fashion. Tayyar does not discuss classes of service, and does not differentiate between effort-based service classes and any other service class, reciting only the general concept of "sessions". Applicants therefore respectfully submit that Tayyar does not teach or suggest "scheduling available bandwidth of transmission links between class-of-service specific FIFO queues using a bandwidth scheduling discipline that ensures instantaneous availability of unutilized portions of bandwidth from all service classes to all effort-based service classes in a specific, consistent, configurable, ratio" as required by independent claim 9.

Applicants further submit that Tayyar does not teach or suggest "further classifying packets from at least one class of service into one of at least two internal subgroups within the at least one class of service" as required by independent claim 9. Tayyar teaches timestamp groups that cross sessions, but does not discuss packet classification sub-groups within a class of service. Applicants respectfully submit that a discussion of subgroups within a class of service is entirely absent from Tayyar.

Claim 11

Applicants respectfully submit that independent claim 11 also recites the requirement of "further classifying packets from at least one class of service into one of at least two internal subgroups within the at least one class of service; and scheduling available bandwidth of transmission links between class-of-service specific FIFO queues using a bandwidth scheduling discipline that ensures instantaneous availability of unutilized portions of bandwidth from all service classes to all effort-based service classes in a specific, consistent, configurable, ratio." Applicants therefore respectfully submit that claim 11 is not anticipated by Tayyar for the same reasons as set forth with respect to independent claim 9.

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Claim 13

Applicants respectfully submit that independent claim 13 also recites the requirement of "further classifying packets from at least one class of service into one of at least two internal subgroups within the at least one class of service; and scheduling available bandwidth of transmission links between class-of-service specific FIFO queues using a bandwidth scheduling discipline that ensures instantaneous availability of unutilized portions of bandwidth from all service classes to all effort-based service classes in a specific, consistent, configurable, ratio." Applicants therefore respectfully submit that claim 13 is not anticipated by Tayyar for the same reasons as set forth with respect to independent claim 9.

Claims 2-4, 6-8, 10, 12, 14-17

Applicants respectfully submit that claims 2-4, 6-8, 10, 12, and 14-17 are patentable at least by virtue of their dependency on independent claims 9, 11, and 13.

Summary

Applicants respectfully submit that Tayyar does not teach or suggest "further classifying packets from at least one class of service into one of at least two internal subgroups within the at least one class of service; and scheduling available bandwidth of transmission links between class-of-service specific FIFO queues using a bandwidth scheduling discipline that ensures instantaneous availability of unutilized portions of bandwidth from all service classes to all effort-based service classes in a specific, consistent, configurable, ratio" as required by independent claims 9, 11, 13, and all claims depending therefrom. Applicants therefore respectfully request reconsideration and withdrawal of this rejection.

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35 U.S.C. §102(e) Afek Rejection

Claims 2-4 and 6-17 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 5,956,340 to Afek at al. (hereinafter "Afek"). This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

Claim 9

Independent claim 9 pertains to "further classifying packets from at least one class of service into one of at least two internal subgroups within the at least one class of service; and scheduling available bandwidth of transmission links between class-of-service specific FIFO queues using a bandwidth scheduling discipline that ensures instantaneous availability of unutilized portions of bandwidth from all service classes to all effort-based service classes in a specific, consistent, configurable, ratio by assigning a priority value to a packet based on a combination of the packet's class of service and the subgroup information of the packet or at least one packet immediately preceding or following said packet."

Afek teaches a method for allocating space in memory for storing messages to be transmitted by multiplexing the buffer space between flows. (Col. 1, lines 5-10). Specifically, Afek teaches that "the present invention multiplexes buffer space and efficiently shares it between flows, according to their needs." (Col. 2, lines 53-55). Afek does not teach or suggest "scheduling available bandwidth of transmission links" as required by independent claim 9. Afek is focused on memory use and buffer space, and makes no teaching of transmission scheduling beyond the round-robin and SFQ scheduling disciplines that Afek uses to compare memory space requirements with. Applicants therefore respectfully submit that Afek does not teach or suggest "scheduling available bandwidth of transmission links between class-of-service specific FIFO queues using a bandwidth scheduling discipline that ensures instantaneous availability of unutilized portions of bandwidth from all service classes to all effort-based service classes in a specific, consistent, configurable, ratio" as required by independent claim 9.

Applicants further submit that Afek does not teach or suggest "further classifying packets from at least one class of service into one of at least two internal subgroups within the at least one class of service" as required by independent claim 9. Afek teaches a queue with timestamp-oriented bins for packet indexing, but does not discuss packet classification sub-groups within a class of service. Applicants respectfully submit that a discussion of subgroups within a class of service is entirely absent from Afek.

Claim 11

Applicants respectfully submit that independent claim 11 also recites the requirement of "further classifying packets from at least one class of service into one of at least two internal subgroups within the at least one class of service; and scheduling available bandwidth of transmission links between class-of-service specific FIFO queues using a bandwidth scheduling discipline that ensures instantaneous availability of unutilized portions of bandwidth from all service classes to all effort-based service classes in a specific, consistent, configurable, ratio." Applicants therefore respectfully submit that claim 11 is not anticipated by Afek for the same reasons as set forth with respect to independent claim 9.

Claim 13

Applicants respectfully submit that independent claim 13 also recites the requirement of "further classifying packets from at least one class of service into one of at least two internal subgroups within the at least one class of service; and scheduling available bandwidth of transmission links between class-of-service specific FIFO queues using a bandwidth scheduling discipline that ensures instantaneous availability of unutilized portions of bandwidth from all service classes to all effort-based service classes in a specific, consistent, configurable, ratio." Applicants therefore respectfully submit that claim 13 is not anticipated by Afek for the same reasons as set forth with respect to independent claim 9.

Claims 2-4, 6-8, 10, 12, 14-17

Applicants respectfully submit that claims 2-4, 6-8, 10, 12, and 14-17 are patentable at least by virtue of their dependency on independent claims 9, 11, and 13.

Summary

Applicants respectfully submit that Afek does not teach or suggest "further classifying packets from at least one class of service into one of at least two internal subgroups within the at least one class of service; and scheduling available bandwidth of transmission links between class-of-service specific FIFO queues using a bandwidth scheduling discipline that ensures instantaneous availability of unutilized portions of bandwidth from all service classes to all effort-based service classes in a specific, consistent, configurable, ratio" as required by independent claims 9, 11, 13, and all claims depending therefrom. Applicants therefore respectfully request reconsideration and withdrawal of this rejection.

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Conclusion

Favorable consideration and allowance of all claims is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael K. Mutter, Reg. No. 29,680 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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